

BASIC COMPLIANCE REPORT

Calculation Type: New Build (As Designed)

Property Reference	6395-0001-4066-22-03		Issued on Date	31/07/2022	
Assessment Reference	001	Prop Type Ref			
Property	Unit 3, 24, Hampton Road, Twickenham, London				
SAP Rating	87 B	DER	14.21	TER	21.87
Environmental	89 B	% DER<TER	35.01		
CO₂ Emissions (t/year)	0.90	DFEE	61.80	TFEE	70.35
General Requirements Compliance	Pass	% DFEE<TFEE	12.14		
Assessor Details	Mr. Christopher Bills, Premi-Air Testing and energy assessment services, Tel: 07751 824354, chris@premi-airtesting.co.uk			Assessor ID	6395-0001
Client					

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Mains gas		
Fuel factor	1.00 (mains gas)		
Target Carbon Dioxide Emission Rate (TER)	21.87	kgCO ₂ /m ²	
Dwelling Carbon Dioxide Emission Rate (DER)	14.21	kgCO ₂ /m ²	Pass
	-7.66 (-35.0%)	kgCO ₂ /m ²	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	70.35	kWh/m ² /yr	
Dwelling Fabric Energy Efficiency (DFEE)	61.80	kWh/m ² /yr	
	-8.5 (-12.1%)	kWh/m ² /yr	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.23 (max. 0.30)	0.23 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.11 (max. 0.25)	0.11 (max. 0.70)	Pass
Roof	0.10 (max. 0.20)	0.10 (max. 0.35)	Pass
Openings	1.53 (max. 2.00)	1.70 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	6.00 (design value)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

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Main heating system

Boiler system with radiators or underfloor - Mains gas
Data from database
Vaillant ecoTEC sustain 24 VUW 246/7-2 (H-GB)
Combi boiler
Efficiency: 89.2% SEDBUK2009
Minimum: 88.0%

Pass

Secondary heating system

None

5 Cylinder insulation

Hot water storage

No cylinder

6 Controls

Space heating controls

Time and temperature zone control

Pass

Hot water controls

No cylinder

Boiler interlock

Yes

Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings

100 %

Minimum

75 %

Pass

8 Mechanical ventilation

Not applicable

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (Thames Valley)

Slight

Pass

Based on:

Overshading

Average

Windows facing North East

10.95 m², No overhang

Windows facing South East

1.47 m², No overhang

Windows facing North West

1.47 m², No overhang

Air change rate

8.00 ach

Blinds/curtains

None

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type

U-value

W/m²K

Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals

6.00 (design value)

Maximum

10.0

Pass

10 Key features

Party wall U-value

0.00

W/m²K

Roof U-value

0.10

W/m²K

Floor U-value

0.11

W/m²K

Photovoltaic array

1.25

kW

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Orientation	North East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Bungalow, Detached
2.0 Number of Storeys	1
3.0 Date Built	2022
4.0 Sheltered Sides	0
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	44.71 m	82.11 m ²	2.40 m

7.0 Living Area	37.02	m ²
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8.0 Thermal Mass Parameter	Simple calculation - Low	
Thermal Mass	100.00	kJ/m ² K

9.0 External Walls

Description	Type	U-Value (W/m ² K)	Gross Area (m ²)	Nett Area (m ²)
External Wall Brick	Timber Frame	0.23	107.30	91.41

9.1 Party Walls

Description	Type	Construction	U-Value (W/m ² K)	Area (m ²)
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10.0 External Roofs

Description	Type	U-Value (W/m ² K)	Gross Area (m ²)	Nett Area (m ²)
External Roof Main	External Plane Roof	0.10	82.11	80.78

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m ² K)	Area (m ²)
Ground Floor	Ground Floor - Solid		0.11	82.11

12.0 Opening Types

SUMMARY FOR INPUT DATA

Calculation Type: New Build (As Designed)

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
Entrance Door	Manufacturer	Solid Door							1.70
Bi-Fold Door	Manufacturer	Window	Double Low-E Soft 0.1			0.63		0.70	1.60
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.40
Rooflights	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.50

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m ²)	Curtain Closed
Front Elevation	Solid Door	[1] External Wall Brick	North East							2.00	
Front Elevation	Window	[1] External Wall Brick	North East	None	0.00					7.18	
Front Elevation	Window	[1] External Wall Brick	North East	None	0.00					3.77	
Side Elevation	Window	[1] External Wall Brick	North West	None	0.00					1.47	
Side Elevation	Window	[1] External Wall Brick	South East	None	0.00					1.47	
Rear Elevation	Roof Window	[1] External Roof Main	South West	None						1.33	

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported	Reference:
Independently assessed	E2 Other lintels (including other steel lintels)	10.12	0.024	Yes	ECD TF01
Table K1 - Approved	E3 Sill	9.17	0.040	Yes	TFW-WD-02
Table K1 - Approved	E4 Jamb	30.20	0.050	Yes	TFW-WD-03
Table K1 - Approved	E5 Ground floor (normal)	44.71	0.160	Yes	TFW-GF-01
Table K1 - Approved	E10 Eaves (insulation at ceiling level)	36.07	0.060	No	TFW-RE-01
Table K1 - Approved	E12 Gable (insulation at ceiling level)	8.64	0.240	No	TFW-RE-01
Table K1 - Default	E16 Corner (normal)	14.40	0.180	No	
Table K1 - Default	E17 Corner (inverted – internal area greater than external area)	4.80	0.000	No	
Table K1 - Default	R1 Head of roof window	1.80	0.080	Yes	
Table K1 - Default	R2 Sill of roof window	1.80	0.060	Yes	
Table K1 - Default	R3 Jamb of roof window	5.92	0.080	Yes	

Y-value	<input type="text" value="0.062"/>	W/m ² K
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18.0 Pressure Testing

Designed AP ₅₀	<input type="text" value="6.00"/>	m ³ /(h.m ²) @ 50 Pa
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Property Tested ?	<input type="text"/>
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As Built AP ₅₀	<input type="text"/>	m ³ /(h.m ²) @ 50 Pa
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19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	<input type="text" value="Windows fully open"/>
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Cross ventilation possible	<input type="text" value="Yes"/>
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Night Ventilation	<input type="text" value="Yes"/>
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Air change rate	<input type="text" value="8.00"/>
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Mechanical Ventilation

Mechanical Ventilation System Present	<input type="text" value="No"/>
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20.0 Fans, Open Fireplaces, Flues

SUMMARY FOR INPUT DATA

Calculation Type: New Build (As Designed)

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				3
Number of passive vents				0
Number of flueless gas fires				0
<hr/>				
21.0 Fixed Cooling System	<input type="text" value="No"/>			
<hr/>				
22.0 Lighting				
Internal				
Total number of light fittings	<input type="text" value="8"/>			
Total number of L.E.L. fittings	<input type="text" value="8"/>			
Percentage of L.E.L. fittings	<input type="text" value="100.00"/>			%
External				
External lights fitted	<input type="text" value="No"/>			
<hr/>				
23.0 Electricity Tariff	<input type="text" value="Standard"/>			
<hr/>				
24.0 Main Heating 1	<input type="text" value="Database"/>			
Description	<input type="text" value="Gas Combi Boiler"/>			
Percentage of Heat	<input type="text" value="100"/>			%
Database Ref. No.	<input type="text" value="18118"/>			
Fuel Type	<input type="text" value="Mains gas"/>			
Main Heating	<input type="text" value="BGW"/>			
SAP Code	<input type="text" value="104"/>			
In Winter	<input type="text" value="90.1"/>			
In Summer	<input type="text" value="75.7"/>			
Controls	<input type="text" value="CBI Time and temperature zone control"/>			
PCDF Controls	<input type="text" value="0"/>			
Delayed Start Stat	<input type="text" value="Yes"/>			
Sap Code	<input type="text" value="2110"/>			
Flue Type	<input type="text" value="Balanced"/>			
Fan Assisted Flue	<input type="text" value="Yes"/>			
Is MHS Pumped	<input type="text" value="Pump in heated space"/>			
Heat Emitter	<input type="text" value="Radiators"/>			
Flow Temperature	<input type="text" value="Normal (> 45°C)"/>			
Combi boiler type	<input type="text" value="Standard Combi"/>			
Combi keep hot type	<input type="text" value="None"/>			
<hr/>				
25.0 Main Heating 2	<input type="text" value="None"/>			
<hr/>				
Community Heating	<input type="text" value="None"/>			
28.0 Water Heating	<input type="text" value="HWP From main heating 1"/>			
Water Heating	<input type="text" value="Main Heating 1"/>			
Flue Gas Heat Recovery System	<input type="text" value="Yes"/>			
Waste Water Heat Recovery Instantaneous System 1	<input type="text" value="No"/>			
Waste Water Heat Recovery Instantaneous System 2	<input type="text" value="No"/>			
Waste Water Heat Recovery	<input type="text" value="No"/>			

SUMMARY FOR INPUT DATA

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Storage System

Solar Panel	No
Water use <= 125 litres/person/day	Yes
SAP Code	901

28.1 Flue Gas Heat Recovery System

Database ID	60076
Brand Model	Vaillant, PFGHRD/1
Details	Year: 2013 + current Applicable Fuel: 1 Boiler Types: RCSK Heat Store Volume: 0 PV module: 0

29.0 Hot Water Cylinder

None

32.0 Photovoltaic Unit

One Dwelling

PV Cells kWp	Orientation	Elevation	Overshading	Connected to Dwelling
1.25	South West	30°	Modest	Yes

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating	£4,000 - £6,000	£22	B 89	

U-VALUE CALCULATOR REPORT

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Building Elements

Roof 000002 - Pitched roof - insulated at ceiling

Roof Type: Pitched Roof, insulated flat ceiling

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)
Ext surface				0.0400	
Layer 1	Roof space				
	Main construction	0	0.2000	0.2000	100.00
Layer 2	Mineral wool				
	Main construction	250	0.0400	6.2500	100.00
	Corrections - Air Gap: Level 0, Fasteners: None or plastic				
Layer 3	Mineral wool quilt				
	Main construction	150	0.0400	3.7500	87.50
	Main construction	150	0.1300	1.1538	12.50
	Corrections - Air Gap: Level 0, Fasteners: None or plastic				
Layer 4	Plasterboard, standard				
	Main construction	15	0.2100	0.0714	100.00
Int surface				0.1000	

Total resistance: Upper limit = 9.996 m² K/W Lower limit = 9.588 m² K/W Average = 9.792 m² K/W
 Total correction = 0.0030 m² K/W U-value (unrounded) = 0.1 W/m² K

Unheated space: None

Total thickness: 415 mm

U-value: 0.10 W/m² K

Kappa: n/a

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Client	
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Building Elements

Wall 000001 - Timber Framed warm frame or hybrid

Wall Type: Timber framed Wall with I-beams

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)
Ext surface				0.0400	
Layer 1	Brick, outer leaf				
	Main construction	103	0.7700	0.1338	100.00
Layer 2	Standard cavity				
	Main construction	52	0.2889	0.1800	100.00
	Corrections - Cavity Unventilated, Emissivity: Normal				
Layer 3	Breather membrane				
	Main construction	1	0.0000	0.0000	100.00
Layer 4	Orientated Strand Board				
	Main construction	9	0.1300	0.0692	100.00
Layer 5	Standard cavity				
	Main construction	20	0.1143	0.1750	91.67
	Main construction	20	0.1300	0.1538	8.33
	Corrections - Cavity Unventilated, Emissivity: Normal				
Layer 6	Thermawall TW50 zero ODP				
	Main construction	100	0.0220	4.5455	91.67
	Main construction	100	0.1300	0.7692	8.33
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 7	Standard cavity				
	Main construction	20	0.1143	0.1750	91.67
	Main construction	20	0.1300	0.1538	8.33
	Corrections - Cavity Unventilated, Emissivity: Normal				
Layer 8	Vapour control layer				
	Main construction	1	0.0000	0.0000	100.00
Layer 9	Plasterboard,				
	Main construction	12.5	0.2100	0.0595	100.00
Int surface				0.1300	

Total resistance:	Upper limit = 4.657 m ² K/W	Lower limit = 4.184 m ² K/W	Average = 4.420 m ² K/W
	Total correction = 0.0053 m ² K/W	U-value (unrounded) = 0.23 W/m ² K	

U-VALUE CALCULATOR REPORT

Unheated space: None

Total thickness: 319 mm

U-value: 0.23 W/m² K

Kappa: n/a

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Building Elements

Floor 000004 - Floor - suspended beam-and-block floor

Floor Type: Suspended Floor

Area = 60.50 m², Perimeter = 33.84 m, Wall thickness = 300.00 mm, Soil: Clay

Depth of underfloor space below ground: 0.200 m Floor wind shielding: Average (suburban)

Floor height above ground: h = 0.000 m

U-value of walls above ground: U_w = 1.500 m

Ventilation openings per perimeter length: e = 0.0015 %

Mean wind speed: v = 5.000 m/s

Resistance on solum: R_g = 0.000 m²K/W

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)
Ext surface				0.1700	
Layer 1	AAC (600 kg/m³)/ concrete				
	Main construction	100	0.1800	0.5556	86.30
	Main construction	100	1.3500	0.0741	13.70
Layer 2	Polythene, 1000 gauge				
	Main construction	2	0.0000	0.0000	100.00
Layer 3	Thermafloor TF70 zero ODP				
	Main construction	150	0.0220	6.8182	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 4	Screed				
	Main construction	75	1.1500	0.0652	100.00
Int surface				0.1700	

Total resistance: Upper limit = 7.709 m² K/W Lower limit = 7.517 m² K/W Average = 7.613 m² K/W

Total correction = 0.0080 m² K/W

U-value (unrounded) = 0.11 W/m² K

Unheated space: None

Total thickness: 327 mm

U-value: 0.11 W/m² K

Kappa: n/a

THERMAL BRIDGING

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General Requirements Compliance	Pass	% DFEE<TFEE	12.14		
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	Junction detail	Source Type	Psi (W/mK)	Length (m)	Result	Reference
External wall	E2 Other lintels (including other steel lintels)	Independently assessed	0.024	10.12	0.24	ECD TF01
External wall	E3 Sill	Table K1 - Approved	0.040	9.17	0.37	TFW-WD-02
External wall	E4 Jamb	Table K1 - Approved	0.050	30.20	1.51	TFW-WD-03
External wall	E5 Ground floor (normal)	Table K1 - Approved	0.160	44.71	7.15	TFW-GF-01
External wall	E10 Eaves (insulation at ceiling level)	Table K1 - Approved	0.060	36.07	2.16	TFW-RE-01
External wall	E12 Gable (insulation at ceiling level)	Table K1 - Approved	0.240	8.64	2.07	TFW-RE-01
External wall	E16 Corner (normal)	Table K1 - Default	0.180	14.40	2.59	
External wall	E17 Corner (inverted – internal area greater than external area)	Table K1 - Default	0.000	4.80	0.00	
External roof	R1 Head of roof window	Table K1 - Default	0.080	1.80	0.14	
External roof	R2 Sill of roof window	Table K1 - Default	0.060	1.80	0.11	
External roof	R3 Jamb of roof window	Table K1 - Default	0.080	5.92	0.47	

Total: **16.83** W/mK:
Y-Value: **0.062** W/m²K:

PREDICTED ENERGY ASSESSMENT

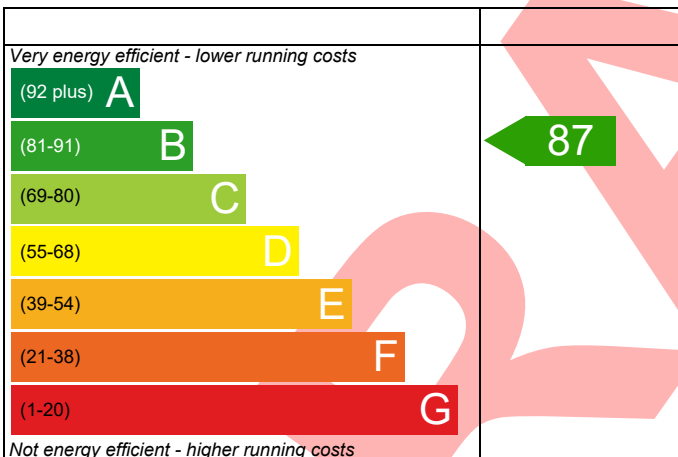
Unit 3, 24, Hampton Road,
Twickenham,
London

Dwelling type: Bungalow, Detached
Date of assessment: 31/07/2022
Produced by: Christopher Bills
Total floor area: 82.11 m²

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

The energy performance has been assessed using the Government approved SAP2012 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.

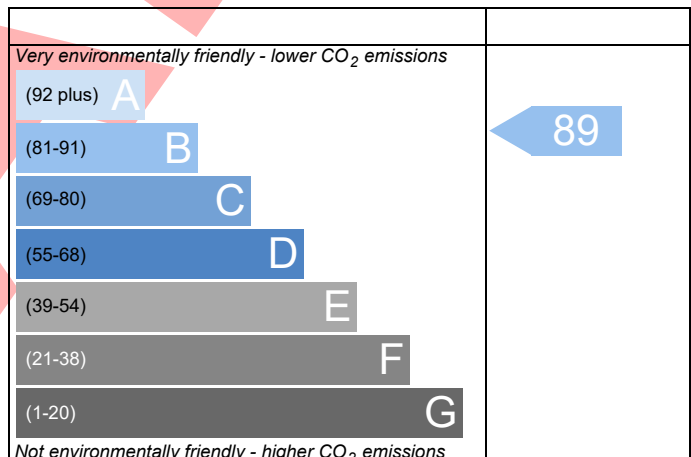
Energy Efficiency Rating



England EU Directive 2002/91/EC

The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

Environmental Impact (CO₂) Rating



England EU Directive 2002/91/EC

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating the less impact it has on the environment.

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